

CLAIMS:

1. A biostimulation method, comprising
irradiating at least a portion of a subject's oral cavity with radiation having at least one selected wavelength component so as to cause a desired biostimulating effect.
2. The method of claim 1, wherein said irradiating step comprises exposing soft tissue in the subject's oral cavity to said radiation.
3. The method of claim 1, wherein said irradiating step comprises exposing facial tissue in to said radiation.
4. The method of claim 1, further comprising applying said radiation to said portion of the oral cavity during multiple treatment sessions so as to administer a selected total dose of radiation to said portion.
5. The method of claim 1, further comprising selecting a radiation power administered during each of said treatment sessions to be less than about 10 W.
6. The method of claim 4, further comprising selecting a time duration of each of said treatment sessions to be in a range of about 10 s to about 1000 s.
7. The method of claim 1, wherein said biostimulating effect causes any of an increased blood and lymph microcirculation in said irradiated portion, activation of blood microcirculation in tooth pulp and gum, increased local macrophage activity, increased fibroblast, osteoblast and odontoblast proliferation, killing of at least one of bacteria, fungi, and viruses in the oral cavity, normalization of the oral cavity pH, killing of viruses within the subject's blood microcirculatory system, light-induced destruction of selected metabolic blood components, reduction of gum bleeding, reduction of tooth hypersensitivity, pain reduction in teeth and throat, periodontal and bone regeneration, implant, crown and filling connection improvement, remineralization of enamel, prevention of caries, root canal sterilization, oral inflammation prevention and periodontol disease prevention and healing.

8. The method of claim 1, wherein said biostimulating effect includes prevention and improvement in at least one of oral mucus inflammatory disease, tongue disease, recovery from inflammation of salivary glands and small sublingual ducts, and pain reduction in oral tissue, sore throat, angina, acute or chronic tonsillitis, sinusitis recovery, recovery of inflammations of vocal cords and cancer prevention of tissues accessible from the oral cavity.
9. The method of claim 1, further utilizing an oral applicator sized and shaped for placement in the oral cavity and incorporating a radiation source to irradiate the oral cavity.
10. The method of claim 1, wherein said irradiating step comprises directing radiation having a selected wavelength band to an area of the subject's oral cavity so as to deposit a dose of radiation below the facial skin to provide a dermatological treatment.
11. The method of claim 10, wherein said dermatological treatment comprises any of treating of facial follicles, epidermis, vascular, lump, muscular, subcutaneous fat, collagen, improvement of acne, hair growth control, wrinkle reduction, skin texture improvement, skin tone improvement, oiliest improvement, skin lifting, lip texture and elasticity improvement, treatment of lips diseases, perioral cheeks and lips vascular improvement and perioral dermatitis treatment.
12. The method of claim 11, wherein said irradiating step comprises directing said radiation to the oral cavity over multiple treatment sessions so as to deposit a radiation dose below said facial skin sufficient to provide said dermatological treatment.
13. The method of claim 12, further comprising selecting a radiation power administered during each of said treatment sessions to be less than about 10 W.
14. The method of claim 1, further comprising selecting said wavelength component such that an irradiated tooth in the oral cavity substantially guides said radiation to any of the tooth pulp, root and tooth apex.

15. The method of claim 1, further comprising selecting said wavelength component to be in a range of about 0.38 to about 0.6 microns so as to cause controlled heating oral cavity tissue at a depth below mucosal lining.
16. The method of claim 1, further comprising selecting said wavelength component to be in a range of about 0.8 microns to about 100 microns so as to cause controlled heating of oral cavity tissue at a depth below the mucosal lining.
17. The method of claim 1, further comprising selecting said wavelength component to be in a range of about 0.6 microns to about 1.3 microns so as to treat facial tissue.
18. The method of claim 1, wherein said irradiating step comprises
irradiating at least a portion of a subject's oral cavity with radiation having wavelength components within a first bandwidth at a first selected time during the subject's circadian cycle, and
irradiating at least a portion of the subject's oral cavity with radiation having wavelength components within a second bandwidth at a second selected time during the subject's circadian cycle.
19. The method of claim 1, further comprising detecting diagnostic signals from said irradiated portion to monitor treatment results.
20. A method of treating a subject's blood, comprising
exposing at least a portion of a subject's oral cavity to radiation having selected wavelength components to irradiate blood flowing in vasculature of the oral cavity.
21. The method of claim 20, further comprising utilizing an oral applicator incorporating one or more radiation sources to irradiate the oral cavity.

22. The method of claim 20, further comprising selecting said wavelength components to be in a range of about 280 nm to about 1.8 microns.
23. The method of claim 20, further comprising selecting said radiation to be in a range of about 280 nm to about 400 nm.
24. The method of claim 20, further comprising selecting said radiation to be in a range of about 300 nm to about 320 nm.
25. The method of claim 20, further comprising irradiating the oral cavity with said radiation during separate treatment sessions such that a radiation power in a range of about 1 mW to about 10 W is administered to the oral cavity during each treatment session.
26. The method of claim 25, wherein said radiation power is in a range of about 1 mW to about 1 W.
27. The method of claim 20, further comprising irradiating the subject's oral cavity for a sufficiently long time so as to expose substantially an entire volume of the subject's blood to said radiation over one or more treatment cycles.
28. The method of claim 20, wherein said radiation causes killing of pathogens in the blood.
29. The method of claim 28, wherein said pathogens are any of bacteria and viruses.
30. The method of claim 20, further comprising introducing a photodynamic agent into the subject's circulatory system and selecting one or more of said wavelength components for activating said agent.
31. A biostimulation method, comprising
applying a biocompatible compound to at least a portion of a subject's oral cavity,

irradiating said oral cavity portion with radiation having at least a selected wavelength component,

wherein said compound has a refractive index at said wavelength component suitable for enhancing optical coupling of said radiation to said oral cavity portion.

32. The biostimulation method of claim 31, wherein said compound has a transparency at said wavelength component suitable for further enhancing said optical coupling.

33. The biostimulation method of claim 31, wherein said compound has a penetrability into said oral cavity tissue portion suitable for further enhancing said optical coupling.

34. The method of claim 31, wherein said wavelength component is in a range of about 280 nm to about 2.7 microns.

35. The method of claim 31, wherein said refractive index is in a range of about 1.3 to about 1.8.

36. The method of claim 31, further comprising selecting said compound to have a molecular weight in a range of about 10 kDa to about 1000 kDa.

37. The method of claim 31, wherein said compound fluoresces in response to exposure to said radiation.

38. The method of claim 31, wherein said compound is a liquid.

39. The method of claim 31, wherein said compound is a gel.

40. A method of delivery a drug to a patient, comprising

irradiating an area of the patient's oral cavity,
administering the drug to at least a portion of said irradiated area.

41. The method of claim 40, wherein said irradiating step enhances penetration of the drug into the oral cavity vasculature.
42. The method of claim 40, wherein said irradiating step activates the administered drug.
43. The method of claim 40, wherein said administering step comprises injecting the drug into oral cavity tissue.
44. The method of claim 40, wherein said administering step comprises placing the drug in contact with the oral cavity mucosa.
45. A method of treating facial tissue, comprising
irradiating at least a portion of said facial tissue from within the oral cavity.
46. A method of improving the appearance of skin, comprising
irradiating tissue within the oral cavity.
47. The method of claim 46, wherein improving the appearance of skin comprises at least one of treating acne, reducing wrinkles, improving skin texture, improving skin tone, and lifting skin.